CLEAN AIR ACT SECTION 112(r) INSPECTION REPORT

ProCaribe

Penuelas, Puerto Rico

GENERAL INFORMATION

Stationary Source	ProCaribe
Date of Inspection	March 11, 2008
USEPA Inspectors	Dwayne Harrington, USEPA – Region II (Edison, NJ) Carlos Rivera, USEPA – Region II, Caribbean Office, Enforcement Jose L. Ayala – RST 2, USEPA – Region II
Contract Auditor	Neil Mulvey, Sullivan Group (Subcontractor)
Description of Activities	• Opening meeting with facility representative. • Program audit. • Closing meeting with facility representatives. Program audit consisted of the following activities: 1. Document review. 2. Field verification. 3. Personnel interviews

STATIONARY SOURCE INFORMATION

EPA Facility ID #	1000 0016 8061
Date of Latest Submission (used for RMP inspection)	Receipt Date: August 17, 2005 (Correction) Anniversary Date: July 28, 2010
Facility Location	Road 385 KM. 5.4 Tallaboa Poniente Penuelas, PR 00624 Tel. (787) 836-3007
Number of Employees	*RMP*Submit* states 18 employees.

Description of Surrounding Area	The facility is located in an industrial section of Penuelas. The main facility, which includes offices, bulk storage tanks, and truck loading operations, are located approximately 1.5 miles north of the Caribbean Sea. The main facility is bordered by public roads to the south and west. The surrounding area is either industrial or hilly wooded open space. Residences are sparse and located south and east of the main facility. An 8-inch LPG transfer line runs approximately 1.75 miles from the pier to the main facility, primarily through open space consisting of trees and brush.
Participants	Participants included: Dwayne Harrington, USEPA – Region II, Edison, NJ Carlos Rivera, USEPA – Region II, Caribbean Office Jose L. Ayala, USEPA Contractor – RST2 Neil P. Mulvey, USEPA Contractor – Sullivan Group Roberto Aponte Malave, General Manager, ProCaribe* Jose L. Rivera, Maintenance Supervisor, ProCaribe * Lead representative for ProCaribe.

REGISTRATION INFORMATION

Process ID #	62821 – Storage and Distribution
Program Level (as reported in RMP)	Program 3
Process Chemicals	Propane @ 51,135,000.00-lbs.
NAICS Code	42471 (Petroleum Bulk Stations and Terminals)

GENERAL COMMENTS

ProCaribe is a fully refrigerated propane marine terminal located in Penuelas, PR. Operations include administrative offices, control room, receiving dock, transfer pipeline, bulk storage, and tank truck loading. The facility receives, stores, and distributes propane (i.e., propane wholesaler). The facility operates 24/7, and includes eight plant operators and six maintenance operators. There are no manufacturing or refining activities performed on site.

Propane is delivered to ProCaribe via marine vessels. An ocean-going vessel is typically refrigerated and may deliver up to 10,000-metric tons of propane. The facility receives approximately one marine vessel per month for off-loading. A 1.75 mile 8-inch pipeline transfers propane from the receiving dock to the main facility. A 4-inch vapor return line returns displaced vapor from bulk storage tanks back to the marine vessel. The dock is owned by the Puerto Rico Port Authority, however ProCaribe personnel are responsible for connecting, disconnecting and material transfers. ProCaribe is responsible for maintaining operating equipment including fire fighting equipment, lights, transfer lines, and monitoring equipment. The PR Port Authority is responsible for maintaining the physical dock structure.

Propane is stored at the main facility in both refrigerated and pressurized tanks. Refrigerated storage is designed to allow for storage of large quantities of propane in non-pressurized vessels. Refrigerated storage includes compressors to draw propane vapor from bulk tanks and return low temperature, low pressure propane liquid to the tank. Typically propane is stored at -45◦F.

Refrigerated propane storage includes:

- Tank # 1010 – 73,000-barrels
- Tank # 1020 – 52,000-barrels
- Tank # 1030 – 125,000-barrels

Pressurized propane storage includes the following tanks designed at 250-PSIG:

- Tank # V-1100 – 15,000-gallons
- Tank # V-1110 – 30,000-gallons
- Tank # V-1120 – 40,000-gallons
- Surge bullet – 40,000-gallons

Propane is transferred from bulk storage to bobtail trucks and tank trucks for distribution. The facility operates two truck loading stations. When filling trucks from refrigerated storage, the propane must be heated from its typical storage temperature of -45◦F to approximately 60◦F. Refrigerated propane is heated by heat transfer in a glycol/water heat exchanger. An odorant (ethyl mercaptan) is added to the propane as it is being pumped into a truck.

Propane is also distributed to a nearby private power authority (EcoElectrica) via a 6-inch pipeline. The 6-inch transfer pipeline is owned by EcoElectrica.

The facility maintains 24 LEL detectors located throughout the site to provide audible and visual alarms in the event of a propane release. LEL detectors are set to alarm at 3% and 10% of the LEL. LEL detectors at the marine unloading dock are designed to close the main unloading valve at 10% LEL. LEL detectors are not designed to automatically shutdown propane truck loading pumps at alarm setpoints.

RMP DOCUMENTATION

Management System [*40 CFR 68.15*]

ProCaribe's General Manager has overall responsibility for implementation of the RMP program as well as day-to-day responsibility for implementation of the program. Management did not demonstrate a good understanding of the RMP program requirements. RMP documents and files were not well organized. There is no written description of RMP management responsibilities.

The facility maintains an outdated document, "ENRON Operations Corporation – PSM Plan". This document contains written guidance for each of the RMP elements, but is outdated and generic in nature.

Hazard Assessment *[68.20-68.42]*

The facility utilized EPA's RMP Guidance for Propane Storage Facilities Reference Tables and Equations to determine the Worst Case and Alternative Release OCAs. The scenario descriptions and assumptions, parameters input to the models, distance to endpoints, and impacted residential population and environmental receptors were appropriate.

Process Safety Information (PSI) [*40 CFR 68.65*]

PSI available for review included:

- MSDS for propane
- P&IDs
- Detailed equipment specification manuals
- Detailed original equipment operations and specifications manuals (1986)

The P&IDs are detailed, including tanks, pumps, valves, instruments, and controls associated with the LPG system, including the compressors. A random spot check of the P&ID for TK # 1020 revealed that actual equipment installation and configuration is consistent with the P&ID.

PSI includes a July 20, 2005 statement by the General Manager certifying that equipment complies with good engineering practices.

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

The facility had records and documentation on three completed PHA studies, as described below.

EcoElectrica Power Plant HAZOP

- Facilitated by RMP/PSM consultant
- Utilized HAZOP method
- Included nine session dates conducted between April and March 1998
- Documented in two volume reports, issued in December 1998
- Well documented and well conducted PHA study
- Team composition consistent with RMP requirements
- Includes process equipment not part of ProCaribe's operation (but part of EcoElectrica Power Plant); does include the LPG receiving and TK # 1030
- Documentation includes resolution of HAZOP recommendations
- Revalidation due March 2003 not completed

ProCaribe Terminal and Storage PHA

- Report dated 4/16/95
- Utilized HAZOP method
- Included four sessions conducted in March 1995
- Documentation includes resolution of each of 39 recommendations
- Well documented and well conducted PHA study
- Team composition consistent with RMP requirements

ProCaribe Terminal and Storage PHA

- Revalidation of the 1995 PHA
- Facilitated by RMP/PSM consultant
- Utilized HAZOP and What-If methods
- Included three session dates conducted on May 17, 18, and 19, 2000; report dated January 2001
- Evaluation considered 22 nodes; excellent detail and cross reference to P&IDs
- Well documented and well conducted PHA study
- Team composition consistent with RMP requirements

- Documentation includes resolution of HAZOP recommendations; note that 10 recommendations (out of 84) remain unresolved (including a recommendation related to the need for thermal relief valves)
- Revalidation due May 2005 not completed

Standard Operating Procedures (SOPs) [*40 CFR 68.69*]

ProCaribe has several manuals containing operating procedures, including:

- Operating Manual for EcoElectrica
- Manual – SOPs and Pump Operation for Truck Loading
- Emergency Procedures Manual
- Dock Operations Manual
- Dock Emergency Manual

The Operating Manual for EcoElectrica contains SOPs for transfer of propane from ProCaribe to EcoElectrica, including procedures for:

⇒ Forwarding LPG using surge tanks using pump
⇒ Vaporizers and booster pumps
⇒ Compressors
⇒ Transfer pump

The original date of the Manual is 11/15/02. Most recent update was 3/13/07. The Manual is scheduled for review/revision on 3/12/08. Documentation includes a 3/13/07 statement certifying that SOPs are current. The SOPs are detailed, step oriented, and show pictures of equipment along with the step-by-step instructions.

The Manual – SOPs and Pump Operation for Truck Loading includes eight procedures for:

⇒ Compressor operation
⇒ Heater
⇒ LPG truck loading
⇒ Unloading ships

The original date of the Manual is 12/14/02. Most recent update was 3/15/07. The Manual is scheduled for review/revision on 3/14/08. Documentation includes a 3/15/07 statement certifying that the SOPs are current. The SOPs are detailed, step oriented, and show pictures of equipment along with the step-by-step instructions.

The original date of the Emergency Procedures Manual is October 2003. Most recent update was 3/15/07. Manual is scheduled for review/revision on 3/14/08. The Manual includes emergency procedures including notification, process description and overview of emergency types.

The original date of the USCG required (33 CFR 127) Dock Operations Manual is June 1999. Most recent update was 6/17/07. The Manual includes emergency procedures for dock operation and emergencies. The Manual describes emergency shutdown switches (ESD) on the dock with automatic interlock based on LEL detection.

While all the above SOPs have been updated in last 12-months, there is no documentation of annual certifications for preceding years.

Training [*40 CFR 68.71*]

The facility does not have a written operator training program. There was no documentation available for review regarding operator training on operating procedures.

Mechanical Integrity [*40 CFR 68.73*]

The facility maintains a computerized maintenance program to track equipment inspections and tests. The facility maintains a comprehensive Maintenance Procedures Manual. The Maintenance Procedures Manual contains well written procedures for various maintenance activities.

The dock LEL/ESD safety system is checked prior to a ship unload. Documentation is maintained via an unloading checklist. A spot check of records showed that the alarm and interlock system was checked on 3/2/08, 11/19/07 and 9/15/07.

LEL calibration records from January 2008 were reviewed. These records indicated some deficiencies with four or five LEL detectors, including "missing instrument" and "card missing". It appears from a review of these records that several instruments may have been inoperative for a period of time, however, facility management explained that the detectors were being relocated.

There was no record of employee training on the maintenance procedures.

Management of Change (MOC) [*40 CFR 68.75*] & Pre-Startup Review (PSR) [*40 CFR 68.77*]

The facility uses an MOC form to document and authorize process changes. There is however, no written MOC procedure. A review of facility records indicated the following MOC reviews:

- Ten MOCs in 1999
- Three MOCs in 2002
- One MOC in 2005
- One MOC in 2006

The MOC form does not include documentation of completed safety and health reviews for these changes.

A PSR checklist review was completed for a plant expansion and start-up (no date) and installation of a back-up emergency generator in July 1997. There are no completed PSR reviews associated with the MOCs listed above. There is no written PSR procedure.

Compliance Audits [*40 CFR 68.79*]

Records of compliance audits include PSM audits conducted in March 1996 and February 2001, which were completed by outside experts. The February 2001 audit, in particular, was detailed and thorough.

A comprehensive RMP/PSM compliance audit was conducted in April 2003 by another outside expert. Documentation of the April 2003 audit includes detailed action plans and resolution of action items.

The next compliance audit, which was due by April, 2006, was not performed. Facility management reported that they assumed that visits from EPA/EQB in 2005 satisfied the requirement for the triennial audit.

Incident Investigation [*40 CFR 68.81*]

ProCaribe has a written procedure for conducting and documenting incident investigations. The procedure includes a form for incident investigation documentation.

The most recent *RMP*Submit* registration included reference to a 11/15/03 incident. A report of investigation of the 11/15/03 incident was reviewed. The report does not include documentation of who participated in the incident investigation.

Employee Participation [*40 CFR 68.83*]

There was no record of a written Employee Participation plan.

Hot Work Permit [*40 CFR 68.85*]

The facility has a written Hot Work Permit program including a permit for controlling and managing hot work. In fact, a hot work permit was issued for use of the digital camera during this RMP compliance inspection.

Contractor Safety [*40 CFR 68.87*]

The facility does not have a written Contractor Safety Procedure. There is, however, record of a completed 'contractor qualification form' completed on 3/10/08 for three contractors. The qualification form includes a comprehensive list of items to review

when conducting contractor screening. The facility also conducts contractor orientation, however there are no records of contractor orientation.

Emergency Response [*40 CFR 68.90 – 68.95*]

The facility maintains an in-house fire brigade to respond to LPG emergencies at the facility, with assistance from the local fire department and emergency services as necessary. The facility has a current emergency response plan, which is updated regularly, and provided training records and equipment inspection records for review.

FACILITY TOUR

Several items noted during the facility tour include:

- Trucks not related to the propane distribution operation are permitted into ProCaribe's yard. Facility management explained that the facility operates, as a separate business, a truck weighing operation. This additional truck traffic, unrelated to propane distribution, presents an increased risk of a truck inadvertently hitting propane tanks or equipment as well as increased security risk. Propane tanks are protected from inadvertent physical contact by concrete bollards.

- LEL sensor #6 was reading 16% LEL. Facility management reported that the sensor had failed and that the facility was investigating. **The facility must ensure that the LEL detectors are properly functioning.**

- Structural support of the dock showed signs of significant damage and deterioration. Facility management reported that maintenance of the dock structure was the responsibility of Puerto Rico Port Authority. Facility management reported that the damaged portion of the dock was either no longer in use or repaired to safe operating condition. A conclusive determination could not be made during this inspection. **The facility must ensure that the structural support of the dock and LPG pipelines is in sound operating condition.**

- There is a significant amount of unused equipment and instruments at the LPG loading dock. **In accordance with good engineering practices, unused equipment and instruments should be removed.**

- It appeared that instrument air lines used to activate / deactivate emergency shutdown device (ESD) switches on the LPG loading dock were poorly supported. Failure of instrument air supply will cause failure of the ESD system. **The facility must ensure the structural integrity of instrument air supply to the ESD system.**

- Switches on the control panel at the LPG dock are not labeled. Other switches on the control panel are no longer operative. **In accordance with good engineering**

practices, operating procedures, and operator training, switches on control panels must be labeled and inoperative switches should be removed.

- Nitrogen supplied from cylinders stored in a small operator shed on the LPG loading dock serve as back-up to instrument air supplied to the ESD system, in case of air compressor failure. Use of nitrogen in an enclosed space presents and asphyxiation hazard. **The facility should determine if an alternative to using nitrogen as a back-up to instrument air is available.**

- The LPG tank truck loading pump is not interlocked to shutdown upon loss of grounding connection with the tank truck. There is no visual indication of whether the ground connection with the tank truck is properly made. **In accordance with good engineering practices, the facility should consider installing a ground interlock or other means to ensure proper grounding of tank trucks during LPF loading.**

- Switches on the control panel at the LPG tank truck loading rack #2 are illegible. **In accordance with good engineering practices, operating procedures, and operator training, switches on control panels should be labeled.**

- LPG tank truck loading hoses were observed lying on ground rather than being stored in a hose rack. The hoses were however protected with an external 'sleeve' to protect against excessive wear. **In accordance with good engineering practices, the facility should consider providing proper storage for tank truck loading hoses.**

- Observed damaged insulation on liquid propane line from refrigerated propane storage tank to the tank truck filling pump. Insulation damage was evident due to frost build-up on line. Damage insulation provides increased likelihood of external pipe corrosion. Observed signs of external corrosion on propane transfer lines. **The facility must repair the damaged insulation on all refrigerated propane lines and ensure transfer lines are protected/treated for external corrosion.**

- Observed manual valve on propane line from a heater with a simple gate valve venting to atmosphere (i.e., no cap on end of line). **In accordance with good engineering practices, the facility must cap or plug the end of propane lines protected by only manual shutoff valves.**

FINDINGS/RECOMMENDATIONS

FINDINGS:

Management System [*40 CFR 68.15*]

- ProCaribe's General Manager has overall responsibility for implementation of the RMP program as well as day-to-day responsibility for implementation of the program. Management did not demonstrate a good understanding of the RMP program requirements. RMP documents and files were not well organized. There is no written description of RMP management responsibilities. **The facility should develop an organization chart showing RMP management responsibilities or develop a written description of its RMP management system as required by 40 CFR 68.15(c).**

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

- Ten of 84 recommendations (including a recommendation related to the need for thermal relief valves) from the May 2000 PHA revalidation remain unresolved. **As required by 40 CFR 68.67(e), the facility should establish a system to promptly address the PHA findings and recommendations and resolve them in a timely manner.**

- The five-year PHA revalidation study is overdue. **As required by 40 CFR 68.67(f), the facility should conduct a PHA revalidation of the covered process.**

Training [*40 CFR 68.71*]

The facility does not have a written operator training program nor documentation regarding operator training on operating procedures. **As required by 40 CFR 68.71, the facility should develop and implement an operator training program, including verification that operators understand training received.**

Mechanical Integrity [*40 CFR 68.73*]

- There was no record of employee training on the maintenance procedures. **As required by 40 CFR 68.73(c), the facility should ensure that employees are trained in procedures related to the on-going integrity of process equipment.**

- A review of LEL calibration records indicated some deficiencies with four or five LEL detectors, including "missing instrument" and "card missing". It appears that several instruments may have been inoperative for a period of time, however, facility management explained that the detectors were being relocated. **As required by 40 CFR 68.73(e), the facility should ensure that deficiencies identified during equipment inspections and tests are corrected in a timely manner.**

Management of Change (MOC) [*40 CFR 68.75*] & Pre-Startup Review (PSR) [*40 CFR 68.77*]

- There is no written MOC procedure. There is no documentation available for review of safety and health reviews of process changes completed in 1999, 2002, 2005 and 2006. **The facility should develop a written MOC procedure and ensure that safety and health reviews are completed for process changes, as required by 40 CFR 68.75.**

- There are no completed PSR reviews associated with the MOCs listed above. There is no written PSR procedure. **The facility should develop a written PSR procedure and ensure that all changes requiring an update of process safety information are reviewed, as required by 40 CFR 68.77.**

Compliance Audits [*40 CFR 68.79*]

- A compliance audit which was due by April 2006 was not performed**. The facility should ensure that RMP compliance audits are conducted at least once every three years, as required by 40 CFR 68.79(a).**

Incident Investigation [*40 CFR 68.81*]

- The most recent *RMP*Submit* registration included reference to a 11/15/03 incident. A report of investigation of the 11/15/03 incident was reviewed. The report does not include documentation of who participated in the incident investigation. **The facility should include identification of who participates in incident investigations so that proper team composition, as required by 40 CFR 68.81(c), is verifiable.**

Employee Participation [*40 CFR 68.83*]

- There was no record of a written Employee Participation plan. **The facility should develop and implement an Employee Participation plan as required by 40 CFR 68.83.**

Contractor Safety [*40 CFR 68.87*]

- The facility does not have a written Contractor Safety Procedure. There is, however, record of a completed 'contractor qualification form' completed on 3/10/08 for three contractors**. The facility should develop a written Contractor Safety procedure, as required by 40 CFR 68.87, including documentation of contractor orientation and periodic checks of contractors' performance while working on-site.**

RECOMMENDATIONS:

- There is a significant amount of unused equipment and instruments at the LPG loading dock. **In accordance with good engineering practices, unused equipment and instruments should be removed.**

- Nitrogen supplied from cylinders stored in a small operator shed on the LPG loading dock serve as back-up to instrument air supplied to the ESD system, in case of air compressor failure. Use of nitrogen in an enclosed space presents and asphyxiation hazard. **The facility should determine if an alternative to using nitrogen as a back-up to instrument air is available.**

- The LPG tank truck loading pump is not interlocked to shutdown upon loss of grounding connection with the tank truck. There is no visual indication of whether the ground connection with the tank truck is properly made. **In accordance with good engineering practices, the facility should consider installing a ground interlock or other means to ensure proper grounding of tank trucks during LPF loading.**